

App. No. 09/842573
Office Action Dated July 13, 2004
Amd. Dated October 13, 2004

REMARKS

Reconsideration is respectfully requested in view of the above amendments and following remarks. Claims 1 and 10 are hereby amended. Claim 1 has been amended editorially and to incorporate the limitations recited in canceled claim 2 and also to recite "the container comprises resin". Claim 10 has been amended editorially. Claim 2 has been canceled without prejudice or disclaimer. No new matter has been added. Claims 1, 3-6, 9 and 10 are pending.

Claim rejections - 35 U.S.C. § 112

Claim 10 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite. Applicants do not concede the correctness of the rejection and respectfully traverse the rejection. Claim 10 has been amended to define a property of the claimed product. Withdrawal and reconsideration is respectfully requested.

Claim rejections - 35 U.S.C. § 103

Claims 1-6, 9 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Holden et al. (US 6,432,582) in view of Okamoto et al. (US 5,780,180). Applicants do not concede the correctness of the rejection and respectfully traverse the rejection.

Claim 1 is directed to a battery assembly in which each battery module has a single safety valve operating in accordance with an internal pressure. The working pressure of each safety valve is set so that the safety valve of at least one battery module is opened when the at least one battery module has its maximum internal pressure or less

App. No. 09/842573
Office Action Dated July 13, 2004
Amd. Dated October 13, 2004

during charge equalization. Thus, the working pressure is set to be no more than the maximum internal pressure of the container during charge equalization. Furthermore, the working pressure of each safety valve is set so that a change in the battery assembly weight after the charge equalization is 0.015 g or less per ampere-hour capacity. Therefore, when the working pressure of each safety valve is set according to the claimed invention, an increase in internal pressure of the container during charge equalization can be suppressed. This effectively improves the container strength without increasing the container thickness.

Holden teaches a recombinant lead-acid battery comprising a plurality of lead-acid cells. The battery has a vent valve-catalyst carrier assembly positioned to vent gas from inside the battery when the pressure exceeds a predetermined level. The valve has specific actuation properties to facilitate pressure relief, which are determined by the choice of rubber used to manufacture the cap of the vent assembly. Thus, Holden teaches the pop-off pressure is dependent upon the material used for the cap, resulting in the safety valve opening when the internal pressure exceeds the working pressure of the safety valve. Holden is silent about the working pressure of a safety valve that is not more than the maximum internal pressure during charge equalization.

Thus, Holden fails to teach or suggest that the working pressure of a safety valve is set so that the safety valve of at least one battery module is opened when the at least one battery module has its maximum internal pressure or less during charge equalization

App. No. 09/842573
Office Action Dated July 13, 2004
Amd. Dated October 13, 2004

and that the working pressure of each safety valve is set so that a charge in the battery assembly weight after the charge equalization is 0.015g or less per ampere-hour capacity.

Okamoto teaches a middle sized sealed alkaline storage battery. The working pressure for the battery safety valve is within the range of 6-8kgf/cm². Okamoto further teaches that the maximum internal pressure range in a charged state is 2-4kgf/cm². Thus, Okamoto teaches that the working pressure of the safety valve is greater than the maximum internal pressure in the charged state.

Thus, Okamoto fails to teach or suggest that the working pressure of a safety valve is set so that the safety valve of at least one battery module is opened when the at least one battery module has its maximum internal pressure or less during charge equalization and that the working pressure of each safety valve is set so that a charge in the battery assembly weight after the charge equalization is 0.015g or less per ampere-hour capacity.

Therefore, neither Holden nor Okamoto, alone or in combination, render claim 1 obvious. Withdrawal of the rejection is respectfully requested.

Claims 3-6, 9 and 10 depend from claim 1. For the reasons discussed above for claim 1, withdrawal of the rejection is respectfully requested.

In view of the above, favorable reconsideration in the form of a notice of allowance is requested. Any questions or concerns regarding this communication can be

App. No. 09/842573
Office Action Dated July 13, 2004
Amd. Dated October 13, 2004

directed to the attorney-of-record, Douglas P. Mueller, Reg. No. 30,300, at
(612)371.5237.

Respectfully submitted,

MERCHANT & GOULD P.C.
P.O. Box 2903
Minneapolis, Minnesota 55402-0903
(612) 332-5300

By 

Douglas P. Mueller
Reg. No. 30,300

DPM:smm

